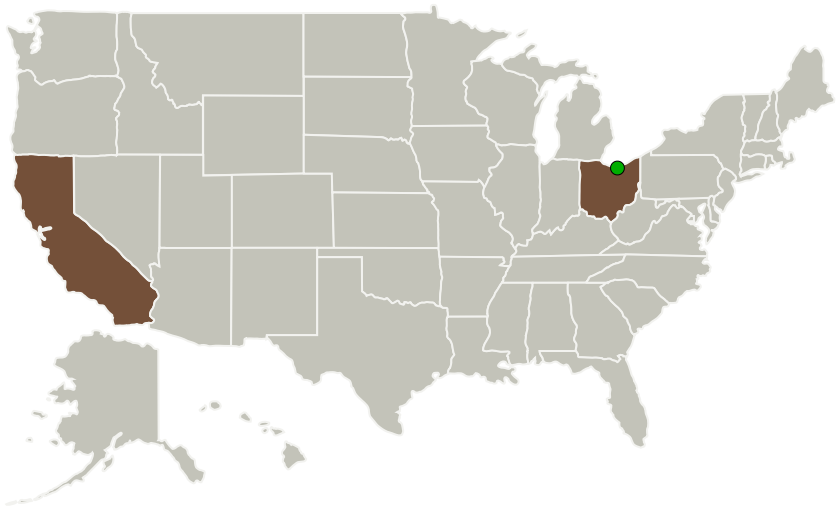
Affordable IMM Multi-Junction Photovoltaic Modular Flexible Blanket Assembly for Lightweight Solar Arrays, Phase I

Completed Technology Project (2012 - 2012)

Project Introduction

Deployable Space Systems, Inc. (DSS) and MicroLink Devices, Inc. (MicroLink) as a key subcontractor will focus the proposed SBIR program on the creation and development of a lightweight high-efficiency un-concentrated ELO IMM multi-junction photovoltaic flexible blanket assembly specifically for future NASA Space Science and Exploration missions that demand ultra-lightweight and affordability. The proposed IMM PV flexible blanket assembly when coupled to an optimized structural platform (such as DSS's Roll-Out Solar Array - ROSA, and/or other optimized flexible blanket solar array structures) will produce revolutionary array-system-level performance in terms of high specific power (approaching 500 W/kg BOL at the array level, or 1000 W/kg BOL at the blanket assembly level), lightweight, high deployed stiffness, high deployed strength, compact stowage volume (>60-80 kW/m3 BOL), reliability, modularity, adaptability, affordability, and rapid commercial readiness. Once successfully validated through the proposed Phase 1 and Phase 2 programs, DSS's lightweight IMM PV blanket assembly technology will provide incredible performance improvements over current state-of-the-art, and in many cases will be mission-enabling for future NASA and non-NASA applications.

Primary U.S. Work Locations and Key Partners



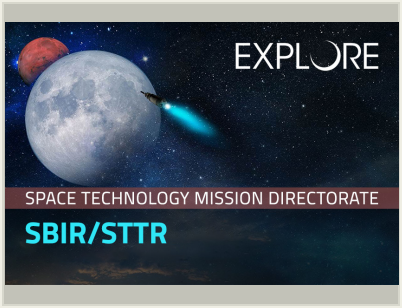


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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	2
Technology Areas	3
Target Destinations	3

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Organizations Performing Work	Role	Type	Location
Deployable Space Systems, Inc(DSS)	Lead Organization	Industry	Goleta, California
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations	
California	Ohio

Project Transitions

February 2012: Project Start

August 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137982)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Deployable Space Systems, Inc (DSS)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

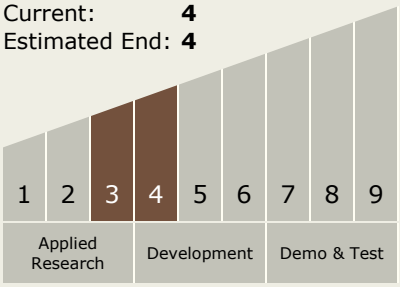
Carlos Torrez

Principal Investigator:

Brian R Spence

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
  - TX03.1 Power Generation and Energy Conversion
    - TX03.1.1 Photovoltaic

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System